**Measure Span**

This determines the amount of overhang "O" shown on the cutting schedule. If greater overhang is desired, order longer top chords.

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**Structural Design Data**

The material designations of tables are available in tabulating systems in the nail-glued trusses. They do not include the combined loads considered as a moment bending (L/6) in the tests. The "40" nail-glued truss was designed as a three-point bending (L/3) shown in the table. The "28" nail-glued truss was designed as a three-point bending (L/3) shown in the table. The "24" nail-glued truss was designed as a three-point bending (L/3) shown in the table.

**Design and Performance Data for 3/12 Nail-Glued Roof Truss**

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**Cut Dimensions**

The following figures and tables are based on 1/2" plywood and 2" x 4" x 10' members. The trusses supported a design load of 10 psf and an ultimate load of 40 psf. The trusses were fabricated with 1500 fpm stress-rated members. The interior members (the long and short diagonals), should be of No. 2 "dimension" wood, or "No. 2 Dimension" by the Southern Pine Inspection Bureau, or "No. 2 Dimension" by the Canadian Inspection Bureau, or "No. 2 Dimension" by the American Lumber Standards, or "No. 2 Dimension" by the American Lumber Standards, or "No. 2 Dimension" by the American Lumber Standards, or "No. 2 Dimension" by the American Lumber Standards, or "No. 2 Dimension" by the American Lumber Standards, or "No. 2 Dimension" by the American Lumber Standards, or "No. 2 Dimension" by the American Lumber Standards, or "No. 2 Dimension" by the American Lumber Standards.
NAIL-GLUING OF ROOF TRUSSES, FRAMES AND OTHER STRUCTURAL COMPONENTS

1. **Nail-Glue for Strength and Economy**

- Nail-gluing makes possible roof trusses, frames, and other structural components which are very stiff and strong. A glued joint holds two members firmly together without slipping.
- In nail-gluing, the adhesive is applied to the structural members and nails or staples are used only to give rigidity to the unit during handling and stacking and to provide pressure while the glue sets. The strength of the finished connection is entirely dependent on the glue bond. Moisture content of lumber for the trusses and frames must be 19% or less.
- The casein glue must meet Federal Specification MMM-A-125, Type I or II. (Type II contains a mild inhibitor.) Mix the glue according to the manufacturer's instructions. Protect the units from rain. After nailing, stack and do not handle again during the curing period.
- Nail-gluing should be used only with properly engineered designs. Use designs presented in the Illinois-Purdue instruction sheets for nail-glued trusses and roof-frames.

2. **Mix Glue**

   - Casein glue is recommended. The glue must meet Federal Specification MMM-A-125, Type I or II. (Type II contains a mild inhibitor.) Mix the glue according to the manufacturer's instructions. Thin or watery mixtures must be avoided.

3. **Lay Out Structural Component**

   - Lay out a flat, sturdy surface (jig, subfloor or slab—not the ground) the truss, roof-frame or other component to be built. The units being constructed should be protected against rain and allowed to cure at temperatures above 50° F.

4. **Apply Glue**

   - Apply glue directly to the lumber members by means of a paint roller, glue brush or mechanical glue spreader.

5. **Fasten Plywood**

   - Nail or staple plywood preferably by means of a mechanical fastening device. Drive fasteners beard so that their heads are buried in the plywood. Solid-wood splice plates must be nailed manually with common wire nails.

6. **Put Plywood in Position**

   - After the glue has been applied to the lumber members, place the plywood in position on the glue area and fasten.

7. **Judge Glue Joint by Squeeze-Out**

   - When two members are fastened together, some of the glue will be squeezed out if the correct amount of glue has been used. This is visual certification of a good glue joint.

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**Inadequate Application**

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**Correct Application**

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**Mechanical Fastening Types of Fasteners Used**

- For plywood gussets
  - 4-d Nails
  - Type “A”
  - Type “B”
- For solid splice plates
  - 8-d Nails

**Nail Heads Buried in Plywood**

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**Use Plenty of Glue**

   - Use plenty of glue on the structural members to cover the entire area of contact. A correct spread of glue on the wood will look like that shown below.
   - A glue spread which is too thin, such as shown in the second photograph, will not give adequate glue bond.
   - A more than adequate glue spread, also illustrated, will result in a good glue bond but the practice is wasteful.

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**Put Plywood in Position**

- After the glue has been applied to the lumber members, place the plywood in position on the glue area and fasten.

**Fasten According to Pattern**

- For members 1/2" wide use one row of fasteners spaced 4” apart.
- For members 3/8" wide, use two rows of fasteners spaced 4” apart and stagger a third row down the center of the members.